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7. (Original) The method of claim 1 wherein said optical amplifier is a rare-earth doped fiber amplifier.

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8. (Original) The method of claim 7 wherein said rare-earth doped fiber amplifier is doped with erbium.

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9. (Currently amended) An optical amplifier with automatic gain control, comprising:
a rare-earth doped fiber for imparting gain to an optical signal propagating therethrough;
a pump source for supplying pump power to the rare-earth doped fiber;
a first optical power monitoring device for receiving a portion of output power generated by the rare-earth doped fiber and converting said portion of the output power to a first control signal;
a second optical power monitoring device for receiving a portion of the input optical signal and converting said portion of the input optical signal to a second control signal;
a controller receiving the first and second control signals and generating a bias current for driving the pump source, said bias current having a value based on at least first and second components, said first component being determined by the second control signal and not the first control signal and the second component being determined by at least the first control signal wherein the bias current is based on the first component only when a change in power of the optical signal received at the input to the rare-earth doped fiber exceeds a predetermined threshold.

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10. (Original) The optical amplifier of claim 9 wherein said portion of the output power generated by the rare-earth doped fiber is a portion of an amplified optical signal.